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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/584,414

02/02/2007

Akio Funae

0757-0316PUS1

9411

2292 7590 04/02/2009  
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EXAMINER

SAFAIPOUR, BOBBAK

ART UNIT

PAPER NUMBER

2618

NOTIFICATION DATE

DELIVERY MODE

04/02/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/584,414	FUNAE ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	BOBBAK SAFAIPOUR	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/26/2006</u> .   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

The information disclosure statement submitted on 06/26/2006 has been considered by the Examiner and made of record in the application file.

### ***Drawings***

The drawings are objected to because the drawings are not properly labeled in English. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claims 1-3** are rejected under 35 U.S.C. 102(b) as being anticipated by **Igarashi et al.** (US 6,351,504 B1; hereinafter **Igarashi**).

Consider **claim 1**, Igarashi discloses a microwave frequency converter comprising:  
an RF amplifier capable of changing a gain to any value (abstract; RF amplifier for amplifying a variable gain of a reception signal) within a range from an amplified state to an

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attenuated state (col. 3, lines 21-27; the reception signal is attenuated to a predetermined level by the attenuator and frequency mixed with a local oscillation signal from the local oscillator); and

a control circuit for applying a gain control voltage to the RF amplifier (abstract; a control switching unit for switching a gain state of the RF amplifier);

wherein the control circuit controls the gain control voltage to be applied to the RF amplifier so as to cause the gain of the RE amplifier to be in the attenuated state during a period of time including a time during which a transmission section performs oscillation and times thereof and thereafter (col. 3, lines 21-27; the reception signal is attenuated to a predetermined level by the attenuator and frequency mixed with a local oscillation signal from the local oscillator), and to be in the amplified state during any period of time other than the period of time (abstract; first operation state when the RF amplifier is placed in an automatic gain amplified state)

Consider **claim 2**, and **as applied to claim 1 above**, Igarashi discloses the claimed invention wherein the control circuit continuously changes the gain control voltage to continuously change the gain of the RF amplifier from a predetermined gain value in the amplified state to a predetermined gain value in the attenuated state, or from a predetermined gain value in the attenuated state to a predetermined gain value in the amplified state. (col. 4, line 52 to col. 5, line 7; read as when the reception signal level goes from the first range to a second range larger than the first range when the reception signal level decreases with the lapse of time)

Consider **claim 3**, and **as applied to claim 1 above**, Igarashi discloses the claimed invention wherein the control circuit instantaneously changes the gain control voltage to instantaneously change the gain of the RF amplifier from a predetermined gain value in the amplified state to a predetermined gain value in the attenuated state, or from a predetermined gain value in the attenuated state to a predetermined gain value in the amplified state. (abstract; col. 4, line 52 to col. 5, line 7; (read as automatic gain amplified state))

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Igarashi et al.** (US 6,351,504 B1; hereinafter **Igarashi**) in view of **Takahashi** (US 5,554,954).

Consider **claim 4**, and **as applied to claim 3 above**, Igarashi discloses the claimed invention except for wherein the RF amplifier employs a FET device or a HEMT device which is

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operated by applying a negative voltage to a gate thereof and a positive voltage to a drain thereof, and the control circuit simultaneously switches ON/OFF a gate voltage and a drain voltage to be applied to the gate and the drain of the device to cause the gain of the RF amplifier to be in the attenuated state when the gate voltage and the drain voltage are switched ON, and to be in the amplified state when the gate voltage and the drain voltage are switched OFF.

In related art, Takahashi discloses the RF amplifier employs a FET device or a HEMT device (read as FET amplifier) which is operated by applying a negative voltage to a gate thereof and a positive voltage to a drain thereof, and the control circuit simultaneously switches ON/OFF a gate voltage and a drain voltage to be applied to the gate and the drain of the device to cause the gain of the RF amplifier to be in the attenuated state when the gate voltage and the drain voltage are switched ON, and to be in the amplified state when the gate voltage and the drain voltage are switched OFF. (abstract; A power supply circuit disclosed herein includes a three-terminal regulator for stabilizing a positive voltage applied thereto, a voltage converter for converting the stabilized voltage into a negative voltage, a power-supply section for stabilizing a voltage by a light-emitting diode, and a control circuit for applying a bias voltage across a drain and source of a GaAs FET amplifier only when a voltage is being applied across the gate and source of the amplifier. When power is introduced from a power supply, the presence of the negative voltage supplied from the voltage converter is sensed by the control circuit and a bias begins to be applied to the gate. Therefore, when it is sensed that a predetermined voltage is applied to the gate, a bias begins to be applied to the drain of the FET thereafter. When power from the power supply is cut off, a drop in voltage is sensed and the drain bias begins being cut off while the gate bias for the FET is cut off thereafter. )

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate the FET device of Takahashi into the microwave frequency converter of Igarashi to raise efficiency and obtain higher reliability.

***Conclusion***

Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Hand-delivered responses** should be brought to

Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Bobbak Safaipoor whose telephone number is (571) 270-1092. The Examiner can normally be reached on Monday-Friday from 9:00am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Matthew Anderson can be reached on (571) 272-4177. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

/Bobbak Safaipoor/  
Examiner, Art Unit 2618

March 27, 2009

/Matthew D. Anderson/

Supervisory Patent Examiner, Art Unit 2618